PROCEEDING
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APPENDIX 7

MISCELLANEOUS RESOURCES ON CARBON FINANCING

THE VOLUNTARY CARBON STANDARD

VERIFICATION PROTOCOL AND CRITERIA

Version 1 for Consultation

1 Introduction

Since agreement on the Marrakech Accords and, in particular, the entry into force of the Kyoto Protocol and commencement of the EU Emissions Trading Scheme, compliance-driven carbon markets have grown rapidly and become a central feature of policies aimed at cutting greenhouse gas emissions in a cost-effective manner and, in so doing, preventing dangerous climate change. Although, these markets are still relatively young, it is becoming increasingly clear that attaching a price to GHG emissions within a clearly regulated framework can act as strong incentive to GHG emissions reductions.

Parallel to this growth of national and international compliance-driven carbon markets, interest is now rapidly expanding in the use of voluntary carbon offsets – emission reduction credits generated by projects voluntarily undertaken to reduce greenhouse gas emissions below a project baseline level. These projects are often invested in by entities that as yet are not subject to binding GHG regulations but that wish make a quantifiable contribution to cutting GHG emissions. However, while compliance markets have evolved around an existing set of rules and adopted regulations – principally those of the Kyoto Protocol's Clean Development Mechanism (CDM) and the EU Emissions Trading System (EU ETS) – no similar framework exists for voluntary emissions reductions. As a result, investors, buyers, project developers, verifiers

and others have had to proceed on an ad hoc basis, leading to the emergence of a number of competing standards with no guidance as to which can be considered credible.

The Voluntary Carbon Standard seeks to provide a credible but simple set of criteria that will provide integrity to the voluntary carbon market and underpin the credible actions that already exist. As such the Voluntary Carbon Standard does not seek to compete with existing standards in the market but rather looks to reinforce those that are robust and already exist (e.g. WBCSD/WRI GHG Protocol for Project Accounting, Gold Standard, CCX) and give confidence to actors in this emerging market about the integrity of their investments.

Specifically, The Voluntary Carbon Standard will ensure that all voluntary emission reductions that meet its criteria are additional and represent real, quantifiable and permanent emission reductions. The Voluntary Carbon Standard does not seek to replace or undermine the Kyoto Protocol or the compliance-driven markets that have arisen around it. On the contrary, it designed to provide rigour to the quantification of many of the project-based activities taking place outside these markets and help drive actions by organisations that are as yet not regulated. It is anticipated that as carbon regulation and pricing expands – leading to larger and more liquid compliance markets – much of the voluntary activity covered by the Voluntary Carbon Standard will become part of these compliance driven systems.

The Voluntary Carbon Standard, therefore, provides the protocol and criteria to verification entities and emission reduction project developers on the specifications for creating, verifying, and registering Voluntary Carbon Units ("VCUs"). The VCU Verification Protocol in Section 2 provides verifiers with a general operating scope for undertaking the verification of VCUs. The VCU Verification Criteria in Section 3 lists 12 minimum threshold criteria which the emission reduction project must meet in order for its reductions to meet The Voluntary Carbon Standard and be verified and registered as VCUs.

VCUs provide companies and institutions with a transitional solution to accelerate the shift towards a low-carbon energy system by channeling funds through voluntary offset programs to low-carbon technologies that directly reduce greenhouse gas emissions from the production and consumption of energy and from industrial processes. In this context, the Voluntary Carbon Standard offers a number of benefits:

- Provides companies and individuals a way to accelerate the transition to a low-carbon energy system by investing in technologies that directly reduce greenhouse gas emissions in the production and consumption of energy and in certain industrial processes.
- Promotes transparency and standardization of the voluntary emission reduction market.
- Enhances liquidity by creating fungible units that can be traded.
- Simplifies the purchase process for voluntary emission reductions by eliminating the need for the purchaser to evaluate the merits of many different projects.
- Through its links with approved VCU registries, provides users with access to sophisticated custodial and reporting platforms, providing transparency and assurance against double-counting.

1.1 Purpose of this document

The purpose of this document is twofold. First, it represents the first public version of The Voluntary Carbon Standard, which IETA, The Climate Group and WEF are making available for public comment (see 1.5 below) prior to the release of the second version in May 2006.

Second, the document provides a detailed description of the minimum quality level that any voluntary emission reduction project needs to satisfy in order for its reductions to meet the Voluntary Carbon Standard, be recognized as a source of VCUs and to become eligible for registration into a VCU Registry. Once registered in a VCU Registry, the VCUs become fungible and tradable instruments between market participants. In addition, this document serves as a guide for verification entities on how to verify compliance of voluntary emission reduction projects with the Voluntary Carbon Standard. As such, this first version of The Voluntary Carbon Standard can be used immediately by those wishing to employ its criteria and generate VCUs. While the criteria may be subject to modification as a result of the consultation period and from time to time thereafter (see 1.4 below), any such changes will not be applied retroactively.

1.2 Overview of the Voluntary Carbon Standard

- The Voluntary Carbon Standard (the "Standard") is a robust quality standard for the measurement and recognition of verified emission reductions created for voluntary use by corporations, organizations and individuals.
- The Standard is the first set of global quality criteria for the rapidly developing voluntary emission reduction market.
- The Standard is being first launched by IETA, The Climate Group and WEF. Together they are releasing the Standard with the aim of helping create a robust and credible market for voluntary project-based carbon offsets and thereby increasing investments in low carbon solutions. The Standard has been initially developed in consultation with a range of companies, organizations and individual climate change experts directly involved in the international carbon market.
- The Standard will be maintained and reviewed on a regular basis by an independent Steering Committee (the "Voluntary Carbon Standard Steering Committee"), consisting of renowned climate change experts who support the standardization of the global voluntary carbon market.
- The Standard is designed to follow the existing CDM approval framework for recognizing emission reductions and the best-practice principles and methods of the WBCSD/WRI GHG Protocol for Project Accounting, which will enable wide application of high quality carbon offsets in the management of companies' and institutions' carbon footprints.

1.3 Voluntary Carbon Unit

- The Voluntary Carbon Standard defines a Voluntary Carbon Unit ("VCU"), which is a measure that equals an emission reduction that is equivalent to one metric ton of CO_2 that has been implemented and subsequently verified according to the criteria comprised by the Voluntary Carbon Standard by an independent verification entity.
- VCUs are uniform instruments for the use in voluntary offset programs that can be purchased and sold between the market participants such as project developers and intermediaries, and ultimately purchased and retired by the participants and/or end-use customers.
- A verified emission reduction shall be defined as a VCU only if it has been certified as meeting all the criteria contained in The Voluntary Carbon Standard and subsequently registered in an approved VCU Registry.
- VCUs are registered and kept in custody in an approved VCU Registry, approved by the Voluntary Carbon Standard Steering Committee.

- In time, it is expected that more than VCU Registry will exist. If more than one VCU registry is in operation, the VCU Steering Committee will ensure that an independent tracking mechanism will ensure against multiple registration of VCUs.

1.4 Governance and The Voluntary Carbon Standard Steering Committee

The Voluntary Carbon Standard and associated documentation will be managed by IETA and The Climate Group (and other independent partners as appropriate) who will act as custodians of the Standard and be responsible for its maintenance and development. IETA – the International Emissions Trading Association- is an independent, non-profit organization dedicated to the establishment of effective systems for trading in greenhouse gas emissions by businesses. The Climate Group is an independent nonprofit organization dedicated to advancing business and government leadership on climate change.

Approval of the Standard and any subsequent modifications to it - and review, auditing and accreditation of registries - will be carried out by an independent Steering Committee. This Voluntary Carbon Standard Steering Committee will consist of nine independent climate change experts, appointed initially by IETA and The Climate Group who will also act as its secretariat. Full rules for the functioning of the VCS Steering Committee will be developed by the time of the release of the second version of the VCS in May 2006.

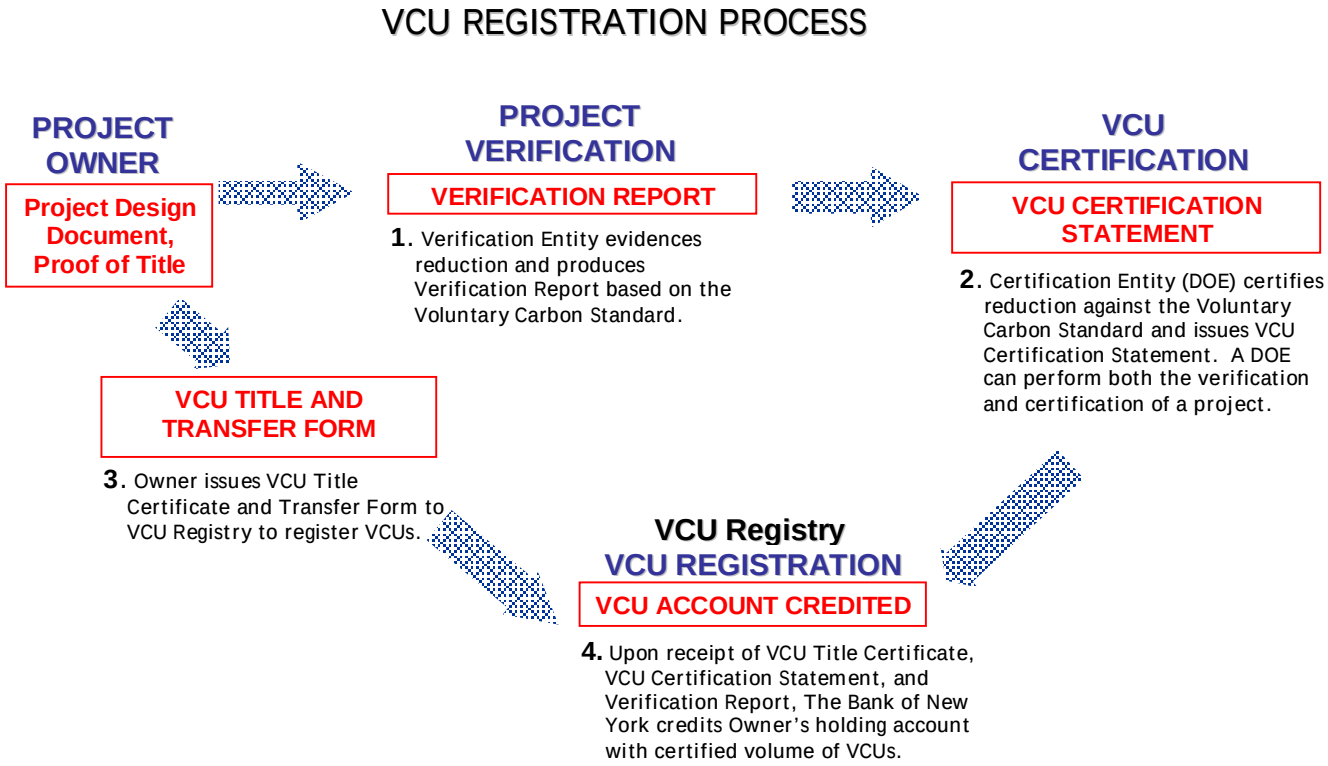
1.5 The Consultation Process

With the initial restricted release of the Standard on March 27th 2006, IETA, The Climate Group and WEF will also initiate a consultation period, seeking comments from a wide range of interested stakeholders. The period for submitting comments will continue until April 18th 2006. The Steering Committee will review comments and suggestions and approve a second version for launch on May 10th 2006 at the Carbon Expo in Cologne, Germany. A set of specific questions has been prepared (see Appendix) and are referenced in the criteria outlined in Section 3 but interested parties are invited to comment on any aspect of the Standard.

2 VCU Verification Protocol

2.1 VCU Registration Process

1. The VCU registration process is only applicable for existing verified emission reductions.
2. At the time of the launch of the Standard, forward streams of VCUs cannot be registered ("validated") into a VCU Registry. However, the Voluntary Carbon Standard Steering Committee encourages project developers and Verification Entities to create validation procedures at market terms to give project developers security of generating VCUs in the future.
3. Applicable Verification Entities are all credible institutions and organizations with documented experience in verifying greenhouse gas emission reductions.
4. A Verification Entity evidences the emission reductions and produces a Verification Report, which must contain all the information that is required to certify that the Verification meets the requirements of the Voluntary Carbon Standard Verification Protocol and that the emission reduction project meets the Voluntary Carbon Standard Verification Criteria.
5. The Certification Entity, a UNFCCC accredited Designated Operational Entity or Certification body formally accredited by the VCS Steering Committee, certifies the reduction against the Voluntary Carbon Standard by issuing a VCU Certification Statement, accompanied by the Verification Report to an approved VCU registry.
6. To prove and warrant the ownership of the emission reductions, the Owner of the emission reductions issues a VCU Title Certificate and Transfer Form to the VCU Registry Operator in order to register the VCUs into the VCU Registry.
7. Upon receiving the VCU Title Certificate, the VCU Certification Statement and the original Verification Report, The VCU Registry Operator will credit the Owner's holding account with the corresponding volume of VCUs.
8. The Voluntary Carbon Standard Steering Committee will develop the criteria and process for accrediting non-DOE Verification Entities for certifying VCUs.



2.2 Qualifying Verification Entities

The Verification Entity is defined as an independent third-party entity which has documented experience in verifying project-based GHG emission reductions and has the required technical experience to determine the accuracy of monitoring GHG emission reductions.

2.3 Qualifying Certification Entities

The Certification Entity is defined as an entity which has been accredited as (1) a Designated Operational Entity ("DOE") by the CDM Executive Board; or (2) an Independent Entity by the Joint Implementation Supervisory Committee ("JISC") and has, where applicable, been accredited by

the CDM Executive Board for the particular scope into which the project falls; or (3) has been accredited as an approved Certification Entity by the VCS Steering Committee.

Accredited DOEs by the CDM Executive Board are those entities officially accredited by the CDM Executive Board for emission reduction project validation/verification/certification services. The list of currently accredited DOEs is maintained at http://cdm.unfccc.int/DOE/list. Sectoral scopes and the DOEs that are accredited for verification services for each scope are defined at http://cdm.unfccc.int/DOE/scopes.html.

As of March 2006, the Joint Implementation Supervisory Council has yet to put in place procedures for accrediting Independent Entities to independently verify/validate JI projects. For the purpose of certifying VCUs, all CDM Executive Board accredited DOEs are eligible to certify VCUs in the sectors that they have been accredited for.

2.4 Scope of Work

The Verification Entity has the following responsibilities in the VCU registration process:

1. Carry out a verification of the reductions generated by the project and produce a Verification Report which is prepared in line with the Voluntary Carbon Standard Verification Protocol, and which contains all the necessary information to evidence the project's compliance with the twelve criteria in the Voluntary Carbon Standard Verification Criteria as set out in Section 4 below.

The Certification Entity has the following responsibilities in the VCU registration process:

1. Certify that the emission reductions in the Verification Report are based on accurate underlying data, employ methodologies that are correctly applied, adhere to the principles and methods of the WBCSD/WRI GHG Project Protocol and that material risks are accounted for.
2. Where necessary, request corrective action from the Verification Entity or to directly undertake the necessary examinations of the project's underlying data to be able to certify the reductions.
3. Issue to an approved VCU Registry a VCU Certification Statement, which certifies that the project is in full compliance with the Voluntary Carbon Standard. The VCU Certification Statement shall also state the number of VCUs generated by the project.

2.5 Audit Practices

The Verification Entity shall carry out the verification in accordance with the audit practices described in "ISEA3000 (Revised) Assurance Engagements other than Audits or Reviews of Historical Financial Information" and/or ISO/FDIS 14064-3 "Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions".

For further details, please refer to the following Internet pages:
ISEA 3000 (Revised): http://www.ifac.org/IAASB/ProjectHistory.php?ProjID=0008
ISO/FDIS 14064-3: http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=38700&scopelist=PROGRAMME

2.6 Good Practice Principles

Both the Verification and Certification Entity shall use the principles and methods of the WBCSD/WRI GHG Project Protocol for their verification and certification work.

The GHG Protocol for Project Accounting; http://www.ghgprotocol.org/plugins/GHGDOC/details.asp?type=DocDet&ObjectId=MTc0MTg

More specifically, the Verification Entity shall use, and the Certification Entity shall enforce, the use of, the good practice principles for the verification process of the VCU Verification Criteria in Section 4 below, as described in the IETA/PCF Validation and Verification Manual (pp.9, Version 4). This manual defines the principles under which documents related to verification should be prepared and reviewed.

For further details, please refer to the following Internet page:
IETA/PCF Manual: http://www.ieta.org/ieta/www/pages/download.php?docID=259

2.7 Transparency

Full transparency in all steps of documentation and verification of emission reductions is the cornerstone of the Voluntary Carbon Standard. Project developers, project operators, Verification Entities and Certification Entities shall ensure throughout the verification process that:

- All assumptions are clearly explained and documented.
- All background material is clearly referenced.
- The rationale for selection and use of baseline methodologies, as well as the use of such are clearly explained.
- The rationale for the identification of baseline candidates
- The rationale for determining the GHG assessment boundary, including documenting specific exclusions of secondary effects
- There is a clear conclusion or decision from all presented discussions.
- All formulas used for calculations are clearly stated.
- All calculations are incorporated or referenced.
- Changes in documentation as a result of validation/verification are clearly identified in revised documents.
- Confidential information is clearly identified.

For further details, please refer to the IETA/PCF Validation and Verification Manual, Version 4, p.10; and the WBCSD/WRI GHG Protocol for Project Accounting, chapter 4, p.22: www.ghgprotocol.org.

Upon submitting projects into the VCU registry, Certification Entities will be required to confirm, in writing, their endorsement of the above guidelines for transparency.

2.8 Level of Assurance

As the Voluntary Carbon Standard only recognizes verified emission reductions, the Verification Entity shall focus on providing the highest level of assurance that the emission reduction calculation methodology used is appropriate and correctly applied, and that emission reductions have been accurately monitored.

In accordance with the recommendation in the IETA/PCF Validation and Verification Manual (Version 4, p.12) it is expected that a Verification/Certification Entity "discounts verified emission reductions or requests a discount of these by using conservative assumptions for uncertainties in emission reduction calculations that cannot be fully quantified or that cannot give a desired level of assurance". For verifying/certifying VCUs, the desired level of assurance should be based on the combined quantitative assessment of the accuracy of monitoring project performance and the identification of material risks, as well as an assessment of the chosen baseline methodology and proof of additionality.

2.9 Accuracy

The Verification Entity shall ensure that all metering installations related to monitoring project performance are of sufficient accuracy and calibrated and maintained to a sufficient standard. The accuracy of measurement should not exceed the lower of a generic +/- 3% range of uncertainty, or the metering device specific range given in table 2 in the Monitoring and reporting Guidelines of the EU ETS defined by EU commission decision of January 29, 2004 (2004/156/EC) on the following internet site:
http://europa.eu.int/eur-lex/pri/en/oj/dat/2004/l_059/l_05920040226en00010074.pdf

A statement of uncertainty should ensure that the emission determination is neither systematically over nor under true emissions, and that uncertainties are reduced by the operator as far as practicable under normal operating circumstances.

2.10 Identification of Material Risks

The Verification Entity shall identify, categorize and list risk factors (quantitative only) that have a high or moderate impact on the requirements of the audit (listed below). Risks should be listed if they affect the accuracy of the emission reduction calculation and the Verification Entity shall clearly report how the risks were accounted for in determining the emission reductions.

High risk category: >5% impact on project emissions
Moderate risk category: <5% impact on project emissions
Low risk category: <1% impact on project emissions

2.11 Freedom of Error

The Verification Report shall include a statement of freedom of material error, where material error is determined as a misstatement where aggregate omissions, misrepresentations, or errors in the total emissions figure is greater than 5%.

2.12 Positive Assurance

The Verification Entity's opinion of each of the requirements of the VCU Quality Standard (as detailed in Section 4) shall be expressed in the form of positive assurance.

2.13 Format of Reporting

Verification Entities can choose any reporting format in which they transparently provide the project's information for meeting each of the VCU Quality Criteria according to the guidelines of the VCU Verification Protocol.

3 The VCU Verification Criteria

#	Criterion	Description of Minimum Quality Level	Actions for Verification Entity (to be certified by Certification Entity)	Definitions, References, and Further Guidance
1.	Project Category	Emission reduction project types eligible under the VCU Verification Criteria are listed below, divided into categories for the benefit of project developers and verification entities: 1. Renewable energy [wind, PV, solar thermal, biomass, liquid biofuels, geothermal, run-of-river hydro] 2. Industrial energy efficiency 3. End-use energy efficiency 4. Fuel switch from fossil to fossil or non-agricultural waste gas 5. Waste gas capture and destruction (recovery) from non-agricultural industrial processes (N_20, HFCs, PFCs, SF_6) 6. Waste gas capture from municipal waste and municipal wastewater treatment (CH_4 &N_20) 7. Fugitive emissions	Verification Entity shall verify that the Project directly avoids or displaces greenhouse gas emissions from an Endorsed Project Category and shall clearly state in the Verification Report which project category the reduction belongs to.	For the purposes of this document, one Project can consist of one or several Project Activities as long as the Project Activities are clearly part of a single Project. This means that one verification report is sufficient for Project with several Project Activities, as long as the Project Activities all meet the VCU Verification Criteria. However, while Project Activities should be quantified separately with their own separate baseline scenarios, the Project shall only use one project assessment boundary for all Project Activities in order to avoid double counting. For more detail, see WBCSD/WRI GHG-PP chapter 2. A Project Activity is defined as a measure, operation or action that aims at reducing greenhouse gas emissions At its first meeting, The Steering Committee will consider the possible inclusion of LULUCF and CCS approved project categories under the Voluntary Carbon Standard, taking into account in particular

		capture/recovery		issues of leakage and permanence.
2.	Geographic Location	The VCU Verification Criteria recognizes projects from any geographic location.	Verification Entity shall verify, through site visits, that at the stated geographic location there are working physical components, installed facility and emission reduction monitoring equipment corresponding to the actual Project disclosed in the project documents made available to the Verification Entity. In the Verification Report, the Verification Entity shall include documented evidence of a site visit confirming existence of the stated Project at the stated location.	
3.	Eligible GHGs	The VCU Verification Criteria acknowledges emission reduction projects involving any of the six greenhouse gases currently included in the Kyoto Protocol.	Verification Entity shall verify that the Project Activity contributes to reductions in the emissions of one or more of the following six Kyoto Protocol greenhouse gases: 1. Carbon dioxide (CO_2); 2. Methane (CH_4); 3. Nitrous oxide (N_2O); 4. Hydrofluorocarbons (HFCs); 5. Perflourcarbons (PFCs); 6. Sulphur hexafluoride (SF_6). In the Verification Report, the Verification Entity shall state the volume of emission reductions for each of the six greenhouse gases separately. The Verification Entity shall further verify and state that the	The six Kyoto Protocol greenhouse gases are defined in Annex A of the Kyoto Protocol: (http://unfccc.int/resource/docs/convkp/kpeng.pdf) IPCC GWP definitions: The Science of Climate Change: Summary for Policymakers and Technical Summary of the Working Group I Report, p. 26. 1995.

			current IPCC published GWP factor has been used for non-CO_2 gases.	
4.	Project Start Date	The VCU Verification Criteria acknowledges emission reduction projects that have started on or after January 1st, 2000.	Verification Entity shall verify, through examination of company documents and records that the Start Date of the Project which generated the emission reductions was on or after January 1st 2000. Verification Entity shall also verify that completion of installation works does not contradict with the dates of generation of emission reductions in the monitoring report.	Project Start Date is defined as the date on which the emission reduction installation or technology was completed and the technology became operational to reduce emissions. See "Guidelines for Completing CDM-PDD", and step 0 of the "CDM Tool for the demonstration and assessment of additionality (v2)": http://cdm.unfccc.int/methodologies/PAmethodologies/AdditionalityTools/Additionality_tool.pdf Financial Disincentive means that the technology applied by the Project Activity incurs direct costs to the project operator which are not recouped by improvements in process energy efficiency or cost reductions in supply of fuel or materials.
5.	Emission Reduction Start Date	The VCU Verification Criteria acknowledges emission reductions which have been generated after January 1, 2000. The Standard acknowledges only existing emission reductions, i.e. reductions that have already happened	Verification Entity shall verify, through examination of company documents, records, and monitoring reports that the emission reductions occurred on or after January 1, 2000. In the Verification Report, the Verification Entity shall clearly state the volume of emission reductions generated in each calendar year separately.	For clarification, the verification period can be shorter than a year.

6.	Public funding and grants	The VCU Verification Criteria only accept projects where no public funding or official development assistance has been employed in the project activity or those elements of the project activity that lead to emissions reductions. Where public funding has been used in conjunction with commercial financing, only emissions reductions associated with that portion of the project that has been financed on purely commercial terms shall be eligible to be certified as VCUs.	Verification Entity shall verify and state in the Verification Report that the Project has not employed any Public Funding, grants or Official Development Assistance ("ODA") for construction or running operations in any of the geographic locations of the Project Activity. Where a combination of public and private funding has been employed the Verification Entity shall verify and state in the Verification report that VCUs have only been generated form that portion of the project that has been financed on purely commercial terms. Verification should be performed through examination of financial records, management interviews, and where necessary, interviews with representatives of the relevant entities or organizations providing development assistance in the respective project locations.	Public Funding is defined as a source of financing (including grants and subsidies) for the Project which originates from Governmental or semi-governmental institutions. ODA is defined by the OECD as financial flows: • To developing countries and multilateral institutions; • Provided by government agencies; • Whose main objective is the economic development and welfare of developing countries; and • That are concessional in character, conveying a grant element of at least 25%. OECD, Development Assistance Committee, Glossary, available online at http://www.oecd.org/glossary/0,2586,en_2649_33721_1965693_1_1_1_1,00.html
7.	Project Boundary/GHG Assessment Boundary	The VCU Verification Criteria require that the project boundary shall encompass all anthropogenic emissions by sources of greenhouse gases (GHG) under the control of the project participants that are significant and reasonably attributable to the project activity.	Verification Entity shall verify and state in the Verification Report that the project boundary and GHG Assessment Boundary incorporates all primary effects and significant Secondary Effects, and that the requirements for defining the GHG assessment boundary (as defined in the GHG-PP) have been met. Verification Entity shall also make sure that the Project Boundary does not indirectly overlap with up- or downstream facilities. In particular, Verification Entity shall disallow any downstream energy	The Project shall only use one project boundary for all Project Activities in order to avoid double counting. GHG Assessment Boundary is defined in Sec 2.5 and Chapter 5 of the GHG-PP, available at; http://www.ghgprotocol.org/plugins/GHGDOC/details.asp?type=DocDet&ObjectId=MTc0MTg

			efficiency projects in jurisdictions which have mandatory GHG emission caps on the electricity sector.	
8.	Calculation Methodology	The VCU Verification Criteria requires that: A. Where possible, the project proponents shall use calculation methodologies that have been approved by the CDM Executive Board for determining emission reductions for the specific Project type. Where an existing approved calculation methodology is not applicable in its entirety, project proponents may use combinations of approved methodologies. B. In situations where an existing CDM Executive Board methodology is not available in its entirety or as a combination of existing approved methodologies, the project proponent shall clearly illustrate how the Project baseline was identified and emission reductions calculated. The proponent may use a performance standard or best practice approaches to determine the baseline emissions and calculating the emissions reductions, as described in the GHG –PP.	A. Verification Entity shall verify and state in the Verification Report, if applicable, that the project proponent has used calculation methodologies that have been approved by the CDM Executive Board for estimating the volume of emissions reductions generated from the Project, and that those methodologies have been correctly and accurately applied in calculating the total emissions reductions generated by the respective Project. This includes, but is not limited to, stating in the Verification Report the following: • Identification of Baseline Candidates; • Determination of a Baseline Scenario; • Definition and calculation of Baseline Emissions; • Definition and calculation of project emissions; and • Calculation of project emission reductions. In case the project has earlier been verified for delivery of VCUs, the Verification Entity shall point out differences in the baseline between the current and any earlier verifications. The baseline shall not remain fixed between two verification periods. In such cases where the Calculation	Approved CDM Executive Board methodologies are those methodologies for calculating emission reductions that have been approved by the CDM Executive Board. The list of currently approved methodologies is maintained at http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html If the Project consists of more than one Project Activity, each Project Activity shall be quantified separately with their own separate baseline scenarios. Baseline Candidates are defined as alternative technologies or practices within a specified geographic area and temporal range that could provide the same product or service as the project's activity (Sec. 2.7 and Ch.7 in the WBCSD GHG Protocol for Project Accounting). http://www.ghgprotocol.org/includes/getTarget.asp?type=d&id=MTc1NDc The Baseline Scenario is a hypothetical description of how the underlying service or product, would have most likely been provided in the absence of any considerations about climate change mitigation through the Project. Baseline Emissions are described as an estimate of GHG emissions that would likely have occurred in absence of the proposed project activity (WBCSD GHG-PP Sec 2.8-2.9 and Ch. 8 & 9). The Performance Standard approach to calculating

			Methodology consists of a combination of approved methodologies, the Verification Entity shall clearly verify: • which approved methodologies have been used ;and, • methodologies have been used accurately and transparently in combination. B. If a CDM Executive Board approved methodology has not been used the Verification Entity shall verify and state in the Verification Report that the Project Activity has applied a methodology equivalent to the approved CDM methodology Verification Entity shall then verify and state in the Verification Report that the requirements, as defined by the GHG PP, for the following criteria have been met: • It uses the Performance Standard approach to calculate the baseline emissions in the absence of the project activity; • All the appropriate Baseline Candidates have been identified and their GHG emissions rates drawn from public references; • An appropriate Stringency Level has been selected for the performance standard; • All Primary and Significant Secondary Effects have been incorporated into the project's GHG Assessment Boundary (see secondary effects criterion below); • The calculation of emission reductions is accurate and fairly stated.	baseline is described in detail in Chapter 9 of the WBCSD GHG-PP. Step-by-step guidance in sections 9.1-9.5 in the WBCSD GHG PP shall be used to create and verify the use of the Performance Standard. Stringency Level is defined (Sec 9.3-9.4 of WBCSD GHG-PP) as a GHG emission rate that is more restrictive than the average GHG emission rate of all baseline candidates (i.e. better than the 50% percentile). The Steering Committee will consider methodologies approved by other programmes (e.g. CCX, RGGI, CCAR) with a view to approving their use as methodologies appropriate for inclusion in the VCU Verification Criteria.

9.	Secondary Effects	The VCU Verification Criteria require that secondary effects be incorporated into the calculation methodology in accordance with the WBCSD GHG PP.	Verification Entity shall verify and state in the Verification Report that the project's GHG Assessment Boundary is in compliance with the ones indicated in the project documents. Verification Entity shall verify and state in the Verification Report that the GHG Assessment Boundary incorporates all primary effects and significant Secondary Effects.	Secondary Effects are defined by the WBCSD GHG Project Protocol (Sec 2.4) as unintended changes caused by the project activity in GHG emissions associated with a GHG Source. Primary Effects are defined as the intended changes caused by the project activity in GHG emissions associated with a GHG Source (GHG PP Sec 2.5). GHG Assessment Boundary includes all Primary Effects and significant Secondary Effects associated with the GHG project (Sec 2.5). Significance is defined in terms of the relative magnitude of the Secondary Effect compared to the Primary Effect (Sec 5.4). A Secondary Effect may be determined as Insignificant and excluded from the GHG assessment boundary if it satisfies the following general criteria (Sec 5.5): • The Secondary Effect involves a positive difference between the baseline and project emissions (i.e. "positive leakage") and is excluded from the GHG assessment boundary; • The Secondary Effect is small relative to the associated primary effect; • The Secondary Effect involves a negligible market response. To clarify, Sec 11.2 of the WBCSD GHG-PP requires reporting of "all significant secondary effects resulting from the project activity" and "justifications for excluding any secondary effects and why they are not significant".
10.	Project Additionality	The VCU Verification Criteria requires that the projects from which emission reductions are created pass an	A. Verification Entity shall verify and state in the Verification Report that there is clear evidence that each of the following three	Project proponents shall analyze any other similar activities implemented previously or which are currently underway using the guidance in Step 4 of

		additionality test. Through the Additionality Test the project proponent shall show that mitigation measures result in a real reduction in greenhouse gases against a transparent emissions baseline. Project additionality shall be determined based on one of the four (A-D) additionality tests described herein.	requirements of the Additionality Test have been met by the project. 1. <u>The project is not common practice.</u> • Provision of underlying service or product with the project technology does not exceed 51% in the defined market area. • Business-as-usual technology options are clearly defined and their position on the market proven by official Statistics. 2. <u>The project is not required by regulation</u> • Local or National Legislation does not require the production of the underlying service or product with the chosen technology. • Additionally, the Project should not have been undertaken to meet a formal or voluntary target imposed by government regulation or under agreement with a government agency (e.g. the auto manufacturers and the EU, where companies agree to meet reduction targets voluntarily through their industry association). • Carbon credits should not be the byproduct from the creation of an ancillary environmental asset and/or financial instrument (e.g. renewable energy credits). • The emission reductions from the Project must not have been used against any voluntary corporate emission reduction targets. • Project is not a downstream	the latest version of the CDM Executive Board document "Tool for the demonstration and assessment of additionality" http://cdm.unfccc.int/EB/Meetings/016/eb16repan1.pdf Project proponents shall use and reference public Statistics by a local or national government body or an international semi-governmental organization (UN, WRI, OECD, IEA) to prove the market share of the project technology and to define business-as-usual technology options in the sector. Local or National Legislation is defined as policy which has been put into law, and is enforced prior to the project start date as defined above in Criterion 4. If the project has supplied (by law or voluntarily) credits for meeting renewable portfolio standards in its geographical area (i.e. where the underlying product or service has been sold) such emission reductions cannot be considered as additional. The project shall prove that that it is not the Least Cost Option for providing the underlying product or service, by the means of an investment comparison analysis (IRR, NPV, cost benefit ratio) against the dominating technology on the market. Guidance can be sought from Sub-step 2b-Option II in the CDM Executive Board additionality tool document.

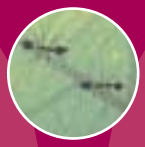
			energy efficiency project in a jurisdiction with a mandatory GHG emissions cap on upstream electricity generators. 3. <u>The project is not the least cost option for providing the underlying product or service.</u> • Companies shall provide calculations that illustrate that the project is not the Least Cost Option. B. Verification Entity shall verify and state in the Verification Report that there is clear evidence that: • Using the steps in the CDM Additionality tool the project has been undertaken to reduce greenhouse gas emissions beyond normal business practice. C. Verification Entity shall verify and state in the Verification Report that there is clear evidence that: • In addition to a satisfactory project baseline, the project falls within the top quintile (20%) in terms of emissions efficiency for producing the underlying service or product in the region/country. D.	Emissions Efficiency is defined as the amount of Co2e in metric tonnes produced per unit of output of the underlying service or product. The relative efficiency shall be measured only against other producers of similar products and services which provide exactly the same utility to the end user in the same geographical market region.

			Verification Entity shall verify and state in the Verification Report that there is clear evidence that a project is additional because: • the project has selected the appropriate baseline and its project emissions are found to be below the selected baseline. In order to determine the baseline the project will use either of the following three determination methods: - Determine the baseline based on existing or historical emissions - Determine the baseline based on its industry benchmark under similar social, economic, environmental and technological circumstances - Determine the baseline by identifying the most likely new project activity providing the same level of services as the proposed project.	
11.	Quality of Reductions	The VCU Verification Criteria requires that projects proponents demonstrate that project implementation has no negative impact on sustainable development in the local community.	Verification Entity shall verify and state in the Verification Report a project's design and implementation has been carried out in compliance with all relevant local and national environmental and social legislation in the host country.	Verification Entity shall use its expertise, experience from previous verification assignments and its professional judgment to determine which project types are likely to be governed by the relevant social and environmental legislation And check such legislation accordingly. Where necessary, the Verification Entity shall highlight the associated negative impacts (e.g. run-of-river hydro –> soil erosion, water availability etc) and verify that the project is not increasing the intensity or magnitude of the problem.

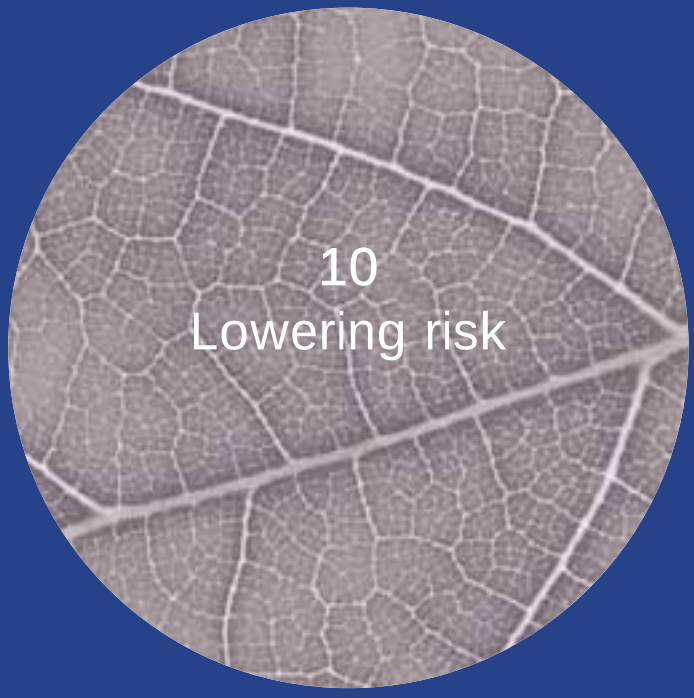
12.	Monitoring Process	The VCU Verification Criteria requires that for estimating a project's emission reductions the project proponent shall, to the extent possible, use the most recent emission reduction monitoring protocol that has been approved by the CDM Executive Board or the JI Supervisory Committee for that project type.	For reductions generated between January 1.2000 and the date of submission, the project proponent shall supply to the Verification Entity a complete Monitoring Report. Verification Entity shall assess the proposed greenhouse gas data management, control and reporting systems, e.g. instructions, procedures, record keeping systems, assumptions, technical equations, models and other means that support complete, accurate, and conservative VCU estimates. Verification Entity shall verify and state in the Verification Report that the project proponent has either (1) used the most recent emission reduction monitoring protocol approved by the CDM Executive Board or JI Supervisory Committee for the project type if available; or if not available has (2) employed monitoring procedures support complete, accurate, and conservative VCU estimates.	A Monitoring Report shall be based on parts D and annex 4 in the most recent version of the CDM PDD template to report on monitoring emissions. http://cdm.unfccc.int/Reference/Documents/cdmpdd/English/CDM_PDD_ver02.pdf The Verification Entity shall use the data monitoring checklist questions C.3 to E.3 provide in the IETA/PCF project verification checklist: http://www.ieta.org/ieta/www/pages/download.php?docID=262 In cases where it is not possible, due to past measurement protocols and technologies, any differences to the templates above shall be clearly disclosed by comparing the actual monitoring report to the most recent version of the CDM PDD

The Gold Standard
Premium quality carbon credits





Industrialised and developing countries, energy developers, emitters and NGOs all have good reason to trust the Gold Standard. It's the benchmark the CDM and JI need.



"The Gold Standard will be *the* international quality label for JI and CDM projects. Adopting the Gold Standard is an investment in your reputation and an assured means of contributing to long-term climate protection and sustainable development."

Jürgen Trittin, German Federal Minister for the Environment,
Nature Conservation and Nuclear Safety

Carbon credits are a new international commodity whose trade will generate billions of dollars. But at present, the carbon market is immature. Opportunities are masked by threats and there are more risks than certainties.

The Gold Standard brings much-needed certainty to this market: the greater the certainty, the lower the risk; the lower the risk, the more stable your investment and the more secure your reputation.

By following the Gold Standard, you have an assured and trusted means of generating carbon credits and reducing emissions. Environmental integrity is at its heart.

- Purchasers of Gold Standard credits – be they governments or corporations – can be sure their assets have value and are sourced from projects which make a genuine contribution to sustainable development.
- Project developers following Gold Standard procedures can be sure their credits will command a fair price.
- Host governments and local communities can be sure projects reflect their priorities and make a lasting contribution to sustainable development.
- Respected and welcomed by host governments and NGOs across the world, the Gold Standard will save you time and money.

For projects large or small, the Gold Standard is the mark of premium quality carbon credits.

"In our country's dynamic pursuit for sustainable development, the Gold Standard is seen as a vital instrument in this endeavour through the development of our potential for renewable energy and energy efficiency."

Honourable Elisea G. Gozun, Secretary
Department of Environment and Natural Resources, Republic of the Philippines

Case study 01
Hydro power in Sri Lanka

Evelop, an international renewable energy project developer is following the Gold Standard in two small-scale hydro projects in Sri Lanka. The 12MW and 3MW power plants in central Sri Lanka are located on free-flowing rivers. They will bring power to thousands of households and replace electricity generated by fossil fuel.

By using the Gold Standard, Evelop believes that the risks associated with CDM project development can be reduced and that by following the Gold Standard, the carbon credits from its CDM projects can be more attractive to potential purchasers. For buyers of carbon credits, the Gold Standard can give confidence that their carbon credits are real and valuable.

Uncertainty and risk cost time and money. The Gold Standard provides a trusted, credible and cost-effective means of reducing greenhouse gas emissions through carbon credits.

Businesses know that quality does not come cheap. Short-term fixes are tempting, but are rarely cost-effective solutions.

Developed by WWF in collaboration with governments, NGOs and corporations around the world, the Gold Standard has long-term environmental and social integrity at its heart.

With so much uncertainty over the future of the carbon market, it makes sense to invest in a quality product. Gold Standard carbon credits are the best because they are designed to withstand the highest NGO, government and market scrutiny. The Gold Standard is rigorous but easily adapted to changing rules and markets.

Based on a simple but comprehensive screening process, the Gold Standard bolsters the foundations of credible project-based emissions trading. Tradable credits from international emission reduction projects – if properly constructed – will provide corporations and governments with the flexibility to protect the climate at minimum cost while they develop the means to reduce their own domestic emissions.

But if the environmental and social integrity of these projects is undermined, the credibility of emissions trading will also be undermined and the carbon market's foundations could be shaken. The Gold Standard – an independently audited best practice benchmark for emission reduction projects – will ensure that emissions credits are sourced from credible and environmentally-friendly activities, supported by the communities they directly affect.

Many CDM project methodologies have been rejected by the market regulator, the CDM Executive Board, because of their low environmental integrity, leaving their developers and buyers with meaningless pieces of paper and damaged reputations.

Gold Standard carbon credits are specifically designed to exceed the environmental standards demanded by the market regulator and governments. That's why they enjoy a lower risk profile, command a price premium and significantly reduce the reputational exposures of both developer and buyer.

At the same time, the Gold Standard will assure host countries that projects truly contribute to their sustainable development.

The Gold Standard will bring clean energy technologies such as wind, small hydro and biomass to the developing world and economies in transition. Adopting the Gold Standard is both an assured means of reducing emissions and a cost-effective compliance tool.

The Gold Standard Features

- **Wide stakeholder support**
- **Global – readily applicable in local contexts across different continents**
- **Environmental and social integrity**
- **The only clear and complete methodology for project developers and verifiers**
- **Low transaction costs, minimum red tape**
- **Compatibility with CDM and JI project cycles;**
- **Simple procedures for CDM operators, developers, verifiers and local NGOs**
- **Applicable to large or small projects**

"South African Climate Action Network (SACAN) has endorsed the Gold Standard and urges the South African government to use this tool for assessing individual projects. Rigorous application of the Gold Standard will provide assurance that projects really do serve the twin objectives of the CDM, i.e. sustainable development and reduction of greenhouse gas emissions."

Richard Worthington, SACAN Co-ordinator

You're being watched... The CDM Executive board, auditors and accountants, NGOs, consumers and governments at home and abroad need to be persuaded that your carbon credits are genuine. Their scrutiny cannot be escaped.

Too many project developers and corporations are learning the hard way that skipping awkward questions wastes time and money. Several projects have already faced lengthy delays or been cancelled as a result of poor design.

Questions must be answered.

Do your carbon credits contribute to long-term climate protection?
Investments in genuinely sustainable energy offer a long-term solution to climate change. The Gold Standard promotes the technologies and practices which are supported by all stakeholders due to their undisputed benefits.

Do they further sustainable development?
All carbon credit projects must show they contribute to sustainable development. The Gold Standard does not seek to interfere with the host government's sovereign right to define sustainable development and accept or reject projects on this basis. Rather it offers a framework for assessing this. By following the Gold Standard's simple procedures you can be certain you meet any government's criteria of sustainable development.

Are they really additional?
'Additionality' is the key issue in the CDM. Fourteen out of fifteen of the first CDM project methodologies put forward were rejected by the regulator because they did not meet additionality requirements. The Gold Standard offers a simple but effective additionality test. It was designed with the advice of the same independent experts responsible for approving CDM methodologies.

Scrutiny of carbon credit projects from host governments and NGOs is high. So it should be. If they are to be successful, developers and investors must source their credits from projects with clear benefits to the environment and to host countries.

The Gold Standard sets the record straight. It provides real emission reductions and real increases in sustainable energy investment.

For credits to have value they must be recognized by the UN's CDM Executive Board. Otherwise they are worthless. The Gold Standard not only meets the UN's requirements. It exceeds them.

Why?
Because Gold Standard Carbon Credits are premium quality.

Have local communities been consulted and are they on board?
If not, then you face problems down the line. Planning consent, ancillary services, permits – everything you need to operate – can be thrown into jeopardy – not to mention your reputation as a responsible investor – if you haven't consulted local communities. The Gold Standards builds in consultation from the outset. Follow it and you'll be fine.

"Some buyers want more than just carbon from their projects: the Gold Standard helps to streamline stakeholder consultation and assures buyers that they are making a strong contribution to sustainable development."

Steve Drummond, CEO, CO2e.com

Case study 02
Biogas in Nepal

The Biogas Support Programme (BSP) has promoted family biogas plants in Nepal since 1992, resulting in some 110,000 families using improved energy for cooking. In addition to providing substantial health and social benefits, household biogas plants in Nepal have excellent environmental benefits. They reduce deforestation and greenhouse gas emissions estimated at around five tons of CO2 per plant per year. BSP plans to build 200,000 new plants from 2003-09 as a CDM Gold Standard project.

Revenue from sales of Gold Standard Certified Emissions Reductions (CERs) would be used to provide support to prospective biogas users in remote rural areas. BSP believes that registering this project with the Gold Standard will allow it to market its CERs to discerning buyers who put a premium on projects with high social and environmental benefits at the local level.

The Gold Standard secures CDM value

The Gold Standard is the product of nearly two years of unprecedented consultation among all those with a stake in the carbon market. It's been worth it. You can trust the Gold Standard.

The Gold Standard's independent Advisory Board is made up of leading authorities on emission reduction projects. It includes some of those involved in the development of the CDM itself. The Advisory Board has given the final seal of approval to Gold Standard procedures.

The Gold Standard is not a prototype. It's live and is being used.

Host country groups – NGOs and governments – have contributed to the Gold Standard's development. Key market participants – brokers, insurance companies, accountants, lawyers and validators – helped ensure that not only does it guarantee environmental integrity, but also that it will actually work efficiently in the market.

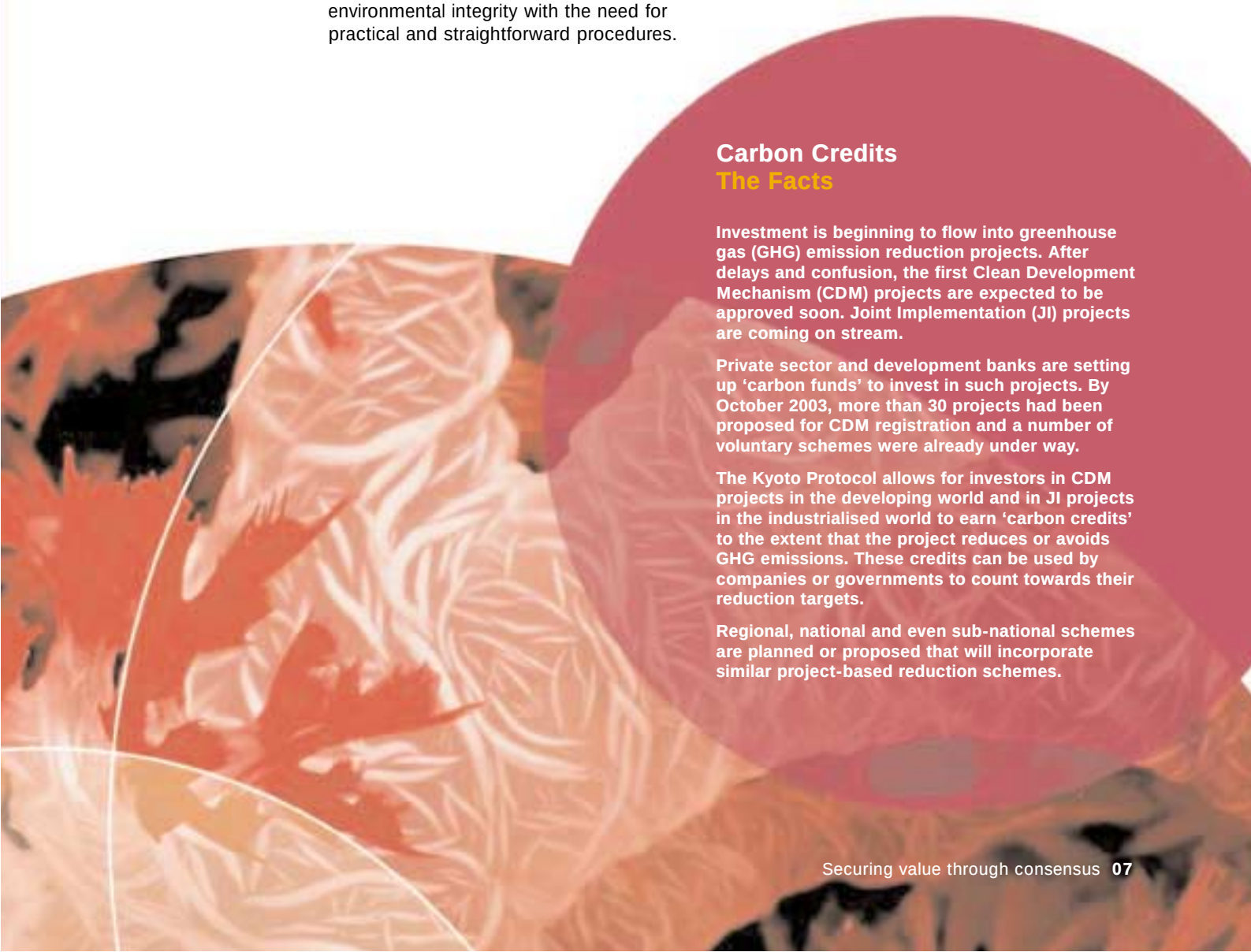
As a result of this consultation, the Gold Standard has balanced concerns about environmental integrity with the need for practical and straightforward procedures.

The Gold Standard is endorsed by all parties with a stake in the carbon market's efficiency and integrity. The Gold Standard is not a WWF product. Still less is it a WWF aspiration. It belongs to all those who support it.

Gold Standard genesis

Over a period of two years a series of events and direct consultations were held in order to have input from as wide a range of stakeholders as possible. These included:

- Initial interviews with a selection of around twenty influential carbon market participants
- Presentations to NGOs, government representatives and private sector companies
- Workshops with NGOs in Japan, South Asia, South East Asia and Europe, and direct consultations with groups from over thirty countries.
- A workshop with project development consultants, brokers and validators
- A five-month open consultation process from which over ninety comments were received and incorporated into the final documentation.



Carbon Credits
The Facts

Investment is beginning to flow into greenhouse gas (GHG) emission reduction projects. After delays and confusion, the first Clean Development Mechanism (CDM) projects are expected to be approved soon. Joint Implementation (JI) projects are coming on stream.

Private sector and development banks are setting up 'carbon funds' to invest in such projects. By October 2003, more than 30 projects had been proposed for CDM registration and a number of voluntary schemes were already under way.

The Kyoto Protocol allows for investors in CDM projects in the developing world and in JI projects in the industrialised world to earn 'carbon credits' to the extent that the project reduces or avoids GHG emissions. These credits can be used by companies or governments to count towards their reduction targets.

Regional, national and even sub-national schemes are planned or proposed that will incorporate similar project-based reduction schemes.

"China is looking for CDM projects with real sustainable development benefits. The Gold Standard will help us achieve this."

Lu Xue Du, Director of Division of Resources and Environment, Chinese Ministry of Science and Technology

It's practical, rigorous and easy to follow – the Gold Standard gives the CDM and JI a good name.

The Gold Standard is designed to provide a benchmark for rigour and quality in CDM/JI project design and implementation. With three simple screens it builds on and clarifies the guidance given by the CDM Executive Board and its Project Design Document.

By closely following CDM and JI procedures and with assessment taking place at the same time as standard CDM/JI processes, additional transaction costs are kept to a minimum. Indeed, the Gold Standard was developed in line with a set of general principles that balance environmental integrity with simplicity and wide applicability in both large and small projects.

The Gold Standard Project Types

The Gold Standard is restricted to the following types of project:

Renewable energy

- Photovoltaic (solar) power generation
- Solar thermal
- Ecologically sound biomass: energy crops; forest and agricultural waste; and agro-processing residues
- Wind
- Geothermal
- Small, low-impact hydro
- Ecologically sound biogas

End-use energy efficiency improvements in the following sectors

- Industrial
- Public
- Commercial
- Residential
- Agricultural
- Transport

In order to meet the Gold Standard, projects must pass through three basic screens:

A Project Type screen
Comprising the sustainable energy technologies needed for long-term climate protection (see circle: Project Types);

An Additionality and Baseline screen
To ensure that carbon credits are backed by bona fide emissions reductions (see circle: Additionality and Baselines);

A Sustainable Development screen
Based on tried and tested rapid appraisal methods and direct public consultation, ensuring that projects contribute towards sustainable development and meet the needs of local stakeholders (see circle: Sustainable Development).

Project developers wishing to have projects validated and verified under the Gold Standard should follow the same procedures as any other CDM or JI project. However, they should instruct the Operational Entity they employ to base their work on the Gold Standard Project Design Document (GS-PDD) and technical appendices, instead of the basic CDM Project Design Document (CDM PDD). The aspects that need to be validated and verified are clearly indicated in the GS-PDD.

The certificate of the Operational Entity that the Gold Standard has been met will be sufficient to demonstrate compliance. A sample of projects will be independently audited by the Gold Standard steering committee to ensure that validation and verification are being consistently carried out to the highest standards and that the Gold Standard's integrity is being maintained. Manuals offering guidance to project developers and Operational Entities will be published in early 2004.

The Gold Standard
Additionality and Baselines

The additionality and baseline screen is designed to ensure that credits are only awarded to genuine emissions reductions that would not happen anyway. Only in this way can increases in emissions elsewhere be truly offset by CDM and JI projects and host countries assured that the CDM and JI are bringing them new investments.

Project developers must answer two questions:

- **Would the project activity occur in the absence of the CDM/JI?**
- **Will overall emissions be lower than they would have been without the project?**

The answer to the first question must be NO, and to the second YES, using the guidelines provided in the Gold Standard PDD.

The Gold Standard
Sustainable Development

A project's contribution to sustainable development is assessed and ensured using three inter-linked procedures:

- **An enhanced Environmental Impact Assessment**
- **Stakeholder consultation at the outset and before implementation that enables local concerns to be built into project design**
- **A qualitative sustainability matrix – based on indicators designed and road-tested by Helio International and SouthSouthNorth network – that guides stakeholder responses and guarantees that the overall impact is positive**

Case study 03
Te Apiti Wind farm

Meridian Energy, New Zealand's largest electricity generator plans to develop the Te Apiti Wind Farm on 1,150 hectares of North Island farming land. The project is expected to consist of fifty five 1.65MW wind turbines with a total capacity of about 90MW. The wind power will be sold into the National Electricity Market whenever it is generated, reducing the need for thermal generation and therefore offsetting greenhouse gas emissions. It will meet the annual power needs of up to 32,300 households.

Following the Gold Standard will assist in enhancing the value of the project's emission reduction units. Meridian Energy believes the development of the Te Apiti Wind Farm has utilised the world's best practice with regards to the consideration of all stakeholders and the environmental, social and economic impact of the project. Achieving the Gold Standard will give potential buyers confidence in the quality of the project's emission reductions and sustainable development value.

"There are a number of investors who want more than greenhouse gas emission reductions from their projects: the Gold Standard assures them that they are funding high quality projects making a strong contribution to sustainable development."

Margot Wallström, EU Environment Commissioner

The Gold Standard is a reliable instrument for reducing climate change

By adopting the Gold Standard, project developers and investors will be able to reduce their exposure to project risks.

The benefits are:

Reduced risk of delay or disruption

The Gold Standard significantly enhances the built-in CDM public participation requirements, making these more comprehensive and able to take local concerns and interests into account. Adherence to the Gold Standard can reassure local environmental and development groups that certified projects have sufficiently addressed environmental and social concerns. This in turn reduces the risk of project interruption.

Enhanced credit delivery

Gold Standard projects are also likely to offer lower credit delivery risk than uncertified projects. The Gold Standard emphasises conservative baseline assumptions, thus dramatically reducing the chance that the project will fail to deliver the expected number of emission reductions.

Reduced reputational risk

Substandard projects are likely to draw criticism from NGOs and governmental bodies scrutinising the companies claiming emissions credits. Those companies that have publicly embraced corporate social responsibility must ensure their actions match their words. Sourcing non-additional credits from controversial projects is likely to generate outrage from NGOs and significant negative publicity.

Lower insurance costs

The Gold Standard can add a further risk management process to the project development cycle. As such, some insurers say that Gold Standard projects will carry a lower risk profile than non-certified projects.

A price premium

All the above arguments translate into higher quality credits, with clear sustainability benefits, from more reliable projects. With the expectation that a significant number of carbon buyers would favour such projects, they are likely to command higher prices than non-certified project credits.

Above all, however, the Gold Standard will ensure that projects are good for the climate and for sustainable development.

"The Gold Standard seeks to establish endorsement by key stakeholders of a CDM project's environmental and social criteria and goals early in the design process. If done effectively, this will reduce the financial risk associated with unexpected objections to project design and increase certainty for participants relying on a flow of CERs to support compliance."

Charles Eyre, Director, Climate Change Solutions, Aon Risk Consulting

How do I follow the Gold Standard?

The Gold Standard is an instrument for the CDM marketplace. Its project documents are available for downloading from **www.cdmgoldstandard.org** and from the websites of its many Supporters.

Remember, all you have to do is follow the Gold Standard Project Design Document rather than the CDM Project Design Document. Our documents cover all CDM requirements plus the three extra Gold Standard screens.

Once your project is complete you'll need to contact your preferred certifier to validate compliance to the Gold Standard.

It's not too late to apply the Gold Standard to projects you may already have begun. Call your developer, auditor, and validator, and tell them to follow the Gold Standard Project Design Document.

For further information contact:

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Telephone: +44 7967 561731

or

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WWF Asia-Pacific Climate & Energy Programme
E-mail: liam@wwfthai.org
Telephone: +66 9813 1499

The future development and implementation of the Gold Standard will be overseen by a Steering Committee drawn from organisations that choose to give their formal endorsement, known as Supporters.

The Standards Advisory Board will support this Steering Committee on technical issues, in particular in ensuring that that the integrity and credibility of the Gold Standard is maintained. A manager will also be hired to coordinate outreach and marketing activities, provide assistance to project developers, validators and Supporters and to update the website.

Standards Advisory Board members

The following are the members of the Gold Standards Advisory Board. All members act in their personal capacity.

Mozaharul Alam
Bangladesh Centre for Advanced Studies (Bangladesh)

Bert Dalusung
Preferred Energy Inc (Philippines)

Liu Deshun
Tsinghua University (China)

Emilio LaRovere
SSN and Federal University of Rio de Janeiro (Brazil)

Holger Liptow
GTZ (Germany)

Ben Pearson
CDM Watch (Indonesia)

Liam Salter
WWF (Thailand)

Agus Sari
SSN & Pelangi (Indonesia)

Steve Thorne
SouthSouthNorth Initiative (SSN) (South Africa)

Harald Winkler
Energy and Development Research Centre University of Cape Town (South Africa)

Steve Bernow
Tellus Institute (USA) 1942-2003

"EcoSecurities views the Gold Standard as a useful tool for companies wanting to implement the highest standard of corporate social responsibility in the carbon market."

Pedro Moura Costa, Managing Director, EcoSecurities Ltd

"Independent, unbiased, comprehensive and easy to follow, the Gold Standard ensures sustainable development and local participation in project development and the decision-making process."

Jesada Luangjam, Ph.D.
Department of National Parks, Thailand

"The Gold Standard can help increase investment into proven and sustainable energy services in the developing world. The REEEP supports the Gold Standard as a tool for ensuring that CDM and JI work to deliver renewable energy and energy efficiency projects on the ground."

Dr. Amal-Lee Amin, Director of Policy and Strategy
Renewable Energy and Energy Efficiency Partnership

"The Gold Standard can be very useful for project developers to mitigate both CDM specific risks as well normal project development risks during the CDM project development cycle because the Gold Standard guarantees that the project is additional and contributes to Sustainable Development."

Jan-Willem Bode, Managing Director, Ecofys UK Ltd

"Denmark is in the process of conducting a call for CDM projects in Thailand. We intend to use the Gold Standard together with other criteria in the screening process before selecting a number of projects that we expect will meet the requirements of the Thai Government regarding sustainable development as well as the requirements of the CDM Executive Board."

Karsten Gasseholm, Royal Danish Embassy, Thailand

"The CDM Gold Standard represents a good approach to creating a premium market for high quality CERs. It thereby increases the chances of household energy and small power projects benefiting from CDM."

Binu Parthan, Director, IT Power India

The Gold Standard has received financial support from the European Commission, the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, and WWF Netherlands.

The Gold Standard is dedicated to the memory of our dear friend and colleague Steve Bernow (1942-2003), whose intellect, ideals and humanity were fundamental in developing the Gold Standard as part of the wider struggle for a clean and fairer world, free from the threat of dangerous climate change.

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www.cdmgoldstandard.org

WWF

The Gold Standard
Premium quality carbon credits

Voluntary Emission Reductions

Improved Efficiency in Use of Non-Renewable Biomass

Proposed Methodology (following that proposed July06 by BS)

Contents

A. Introduction

Climate Care Trust has in the past provided finance and assistance to several projects disseminating efficient wood-fuel-fired cook-stoves.

These projects have helped meet the urgent need to improve human health and economic opportunity in developing countries, as well as providing an important method of mitigating global warming.

Together with other organizations, Climate Care believes that further projects of this type are urgently needed to meet sustainable development gaols, and to mitigate global warming. The voluntary and compliance markets in emission reductions (ERs) provide appropriate mechanisms to finance the projects.

Drawing on work by Bernard Schlamadinger and Anandi Sharan[1] this document sets out a simple approach to assessing a cook-stove improvement project and quantifying its ER output.

Notice is taken of the requirements of the CDM New Methodology submission requirements and guidelines (Form CDM-NM version 06-1) and the Project Design Document requirements of both the CDM and Gold Standard. In the interests of keeping it as short as possible for easy communication while drafting it, an abbreviated template is used in place of the CDM and GS templates.

Standard names are used for variables as recommended by the Guidelines (V06.1) for CDM methodolgies and project documents.

B. The methodology steps

B.1 Ascertain non-renewability

In order for this methodology to be applied, a key requirement is that the biomass being used by project participants is non-renewable, that is, the emissions arising from its combustion are not absorbed by the biomass growth in the project area.

This is to be demonstrated by satisfying at least one of the criteria below:

a) the distance of biomass transport to the point of consumption is shown to be increasing in the recent past.
b) the current trend of biomass use in the region (including projected increase during the crediting period of the project) is shown to be unsustainable in the long term.
c) the estimated demand for biomass in the region is shown to exceed the estimated supply (this being the supply that can be sustained in the long term)

In all cases these criteria refer to the aggregate supply and demand in the whole project area, regardless of whether or not there is a mix of renewable and non-renewable biomass being used as fuel by the project participants.

In a geographic area where wood-fuel is the predominant cooking fuel, it is generally a practical reality that at least a small component of renewable fuel (such as agricultural waste and biogas) can substitute for non-renewable. The mix can be in the form of

[1] The annex reproduces the methodology as proposed in July 2006 to the CDM EB by Bernard Schlamadinger of Joanneum Research, Graz, Austria, in collaboration with Anandi Sharan of CERINDIA.

This text amends the section on identification of non-renwability of biomass by drawing from the submission to the Gold Standard by Anandi Sharan, entitled Switching from Non-Renewable Biomass for Cooking and water heating to Cooking and water heating Energy from Renewable Sources for the Individual Domestic User, and Conserving Fuel wood for cooking and water heating by the Individual Domestic User
version 1 22/06/2006.

seasonal substitution (for example a family may use wood-fuel predominantly but also harvest residues as and when they are available) or by variation in resources (a family with access to crop wastes or with cows as opposed to one without).

The overall effect of application of the methodology should be that it promotes sustainability, which implies that the ultimate target is to introduce sufficient efficiency improvement in a biomass stove and sufficient utilization of alternative fuels such as agricultural waste or biogas, such that within the project region:

Renewing biomass > Demand for wood-fuel

Where renewing biomass is composed of a mix of wood-fuel re-growth and agricultural waste available for use as fuel or other low-emission fuel, such that

SMAI + AW > Demand for wood fuel

Where
SMAI = sum of mean annual increments of wood fuel types
AW = agricultural waste or alternatives, used as substitutes for wood-fuel

Should this expression be shown to hold true, then the project does not qualify for this methodology but instead switches a geographic region in aggregate from a non-renewable to a renewable biomass base with respect to wood-fuel. The emission reductions are then better, which is an incentive for project designers to increase the use of renewable energy components in the cooking fuel mix.

This methodology applies only to cases where accredited literature sources, remote-sensing research, and specific field studies indicate that the expression will not hold true throughout the project period.

The methodology does not calculate the full emission reductions arising from the renewable part of the mix, but instead attributes to this part the lesser rate of emission reduction which arises from more efficient use of the non-renewable component, in order to be conservative. In cases where the switch to a renewable fuel comprises a significant part of the impact of a project, the case may be made to use an alternative methodology.

In all cases it must be shown the non-renewable condition existed before September 2006 (in order to avoid an incentive for deforestation).

B.2 Calculate emission reductions

(a) $$ER_y = B_{y,savings} \cdot NCV_{biomass} \cdot EF_{non-renewable\ biomass,CO2} \cdot 10^{-3}$$

ERy	Emission reductions during the year y in t CO_2e
By,savings	Mass of non-renewable biomass that is saved in tonnes
	In the case of charcoal the quantity of non-renewable biomass going into the charcoal making process should be used (IPCC

	default: 6 kg wood per kg charcoal, reference manual of 1996 Guidelines page 1.45)
NCVbiomass	Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 15 MJ/Kg).
EFnon-renewable biomass, CO_2	Emission factor for the substitution of non-renewable biomass by similar consumers locally in t CO_2 / TJ biomass.

where either:

(b1) $$B_{y,savings} = B_y \cdot (1 - \frac{\eta_{old}}{\eta_{new}})$$

By	Mass of non-renewable biomass used in the absence of the project activity
η_{old}	Efficiency of the system being replaced, use 20% as default value or local data if available
η_{new}	Efficiency of the system being deployed as part of the project activity.

or where (b2): By, savings = By, old – By, new

By, old	Mass of non-renewable biomass used in the absence of the project activity in tonnes
By, new	Mass of non-renewable biomass used by the project activity in tonnes

and where (c)

$$EF_{\text{non-renewable biomas, CO2}} = \frac{1}{2} \cdot (EF_{CO2,\text{start}} + EF_{CO2,\text{end}})$$

$$EF_{CO2,\text{start}} = EF_{CO2,\text{biomass}}$$

$$EF_{CO2,\text{end}} = X * (\frac{\varepsilon_{\text{stoves, biomass}}}{\varepsilon_{\text{stoves, fossil}}} \cdot EF_{CO2,\text{fossil}}) + (1 - X) * EF_{CO2,\text{biomass}}$$

$EFCO_2$, start	CO_2 emission factor of the baseline at the start of the project
$EFCO_2$, end	CO_2 emission factor of the baseline at the end of the project

$EFCO_2$, fossil	CO_2 emission factor for the fossil fuel; 71.5 tCO_2/TJ for Kerosene, 63.0 tCO_2/TJ for LPG or the IPCC default value of the fossil fuel commonly observed with local consumers
$EFCO_2$, biomass	CO_2 emission factor for the biomass fuel; 109.6 tCO_2/TJ (default for biomass from IPCC 1996 GL).
X	Share of fossil fuel used, in the baseline, by the "in-project" consumers at the time when the project ends, according to historical and/or current trends. X is to be determined as part of the PDD. By definition, at the beginning of the project all "in-project" consumers use non-renewable biomass.
εstoves,biomass	Average efficiency of stoves fired with biomass, use 20% as default value or local data if available
εstoves,fossil	Average efficiency of stoves fired with fossil fuels, use 50% as default value or local data if available

(d) The above calculation can be applied in different ways according to the circumstances of the project. For example:

1. If the project is characterized by stoves of standard size stoves performing the same thermal duty (families cooking according to the same pattern), then for each year of the project the element B,y savings (Mass of non-renewable biomass that is saved in tonnes) is calculated as N,y . BSpS such that the governing formula above becomes:

ER, y = N,y . BSpS . NCVbiomass . EFnon-renewable biomass, CO_2

Where

N,y = number of operational stoves in year y (or normalized to stove-years) as derived from measurements of baseline study and monitoring

BSpS = Mass of biomass saved on average per stove, as derived from measurements of baseline study and monitoring

2. If the project is characterized by stoves of different sizes or variations in amounts of food cooked in different locations (as with institutional stoves) then the methodology can be applied to each installation separately prior to summing the results. For example, baseline measurements could generate a figure for average Biomass Saved per Meal Cooked (BSpM) in cases where this does not vary significantly between institutions, together with figures for average meals cooked by each institution each year (Mi,y), such that:

ER, y = Sum of institutions (Mi,y . BSpM . NCVbiomass . EFnon-renewable biomass, $CO_{2)}$

B.3 Leakage and conservativeness

If there is a possibility that the savings of non-renewable biomass due to the project activity lead to greater use of non-renewable biomass outside the project boundary, then a leakage deduction of 15% is made to the projected gross emission reduction estimate.

A conservative approach to assessment of GHG savings should be taken, to avoid risk of over-estimation.

B.4 Monitoring

- Monitoring shall measure representative samples of mass of biomass used before and after installation of devices and efficiency measures, ensuring that the measurements are taken for the same loading and thermal effect. It will include descriptions of the before and after technologies.
- Monitoring will measure representative samples of the moisture content of the biomass at the time it is burnt
- Monitoring shall consist of an annual check of all appliances and new measures installed or a representative sample thereof to ensure that they are still operating or replaced by an equivalent in service appliance or measure.
- Monitoring shall include the efficiency of the appliances.
- Monitoring shall ensure that the replaced low efficiency appliances are not used within the boundary.
- Monitoring will include measurement of the quantity of alternative fuels (such as agricultural waste) used by project participants and an assessment will be made as the aggregate biomass renewability status of the project region
- If the leakage deduction of 15% is not applied, monitoring shall demonstrate that greater use of non-renewable biomass outside the project boundary does not occur.
- The wider social and economic impact of the project will be monitored, in general an on-going analysis will be made of its contribution positive or otherwise to sustainable development in the area.

B.5 Justification of the choice of baseline methodology

The methodology is chosen as it is relatively straightforward to apply, and because it is grounded in field measurements. As a result the emission saving outcome is accurately assessed.

This point particularly applies to variation (b2) described above. This differs from (b1) in that it does not rely on laboratory measurements of an improved stove, but instead on field measurements of wood-fuel mass use before and after introduction of the stove. Such field measurements give a very accurate guide to carbon dioxide savings, for three reasons:

- mass is easily measured with precision

- the efficiency of the traditional stove compared to the improved stove is measured in actual conditions of use, by virtue of measurement of mass. This approach eliminates the risk that laboratory conditions differ from field conditions, for instance with respect to fuel wood humidity content, thermal load of the cooking process, application of the fuel, amount of residue, and so on.
- no account is taken of the potential savings made in non-CO2 green-house gases, simplifying the measurements and so assuring the accuracy and conservatism of the results

The methodology is therefore particularly well suited to provision of conservative assessments of emission reductions in the conditions of subsistence farmers living far from urban centres.

C. Other requirements

C.1 Sustainability indicators

The methodology requires not only an assessment of CO2 emission reductions but also of the degree to which the project activity and the reductions are complementary to sustainable development in the region.

This should be assessed by analysis of the project's social, economic, and environmental impact through a set of sustainability indicators. Suitable justification should be given for grading the impact of the activity against an appropriate check-list of such indicators.

C.2 Stakeholder participation

The methodology requires that the associated project activity is designed with the participation of people whose lives and interests it affects. There must be evidence that stakeholders have been appropriately identified and informed of the project plans, that sufficient time and opportunity has been given for their views to be expressed, and that their views have been taken into account in the final project design.

D. Annex: Text of 27 July 2006 submissions by Bernard Schlamadinger

This annex contains the original text and amendment form for three methodologies as submitted to the CDM EB on 27 July 2006. Yellow highlights are used by the author to indicate changes from two previous methodology submissions.

The three methodologies are:

Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass (revision of draft methodology recommended for Category II.G)

Switch from Non-Renewable Biomass to Renewable Energy for Thermal Applications by the User (revision of draft methodology recommended fro Category I.E)

Switch from Non –Renewable Biomass to Lower Emission Fossil Fuels for Thermal Applications by the User (recommended for Category III)

D.1 Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass

Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass

Technology/ Measure

1. This category comprises small appliances involving efficiency improvements in the thermal application of non-renewable biomass (such as fuelwood or charcoal). These technologies and measures include high efficiency cook stoves and ovens using non-renewable biomass. Project activities, which also involve the switch to renewable biomass, shall apply using the category "".

Boundary

2. The project boundary is the physical, geographical area of the use of non-renewable biomass.

Baseline

3. It is assumed that in the absence of the project activity, the baseline scenario would be the mix of non-renewable biomass and fossil fuel use expected to be used in the baseline, within the project duration, by the local consumers, for meeting similar thermal energy needs. Project proponents must demonstrate that the biomass use claimed to be non-renewable is indeed non-renewable, following the EB 23 Annex 18 definition of "renewable biomass" (by inversion).

In order to avoid incentives to enhance deforestation and forest degradation in order to meet the conditions of "non-renewable biomass", project proponents must, in addition, demonstrate that the biomass used by the project participants was non-renewable at the time of, or before, the adoption of this methodology (September 2006).

4. Emission reductions would be calculated as:

$$ER_y = B_{y,savings} \cdot NCV_{biomass} \cdot EF_{non-renewable\ biomass,CO2} \cdot 10^{-3}$$

Note: 10^{-3} added

where:

ERy	*Emission reductions during the year y in t CO_2e*
By,savings	*Quantity of non-renewable biomass that is saved in tonnes*
	In the case of charcoal the quantity of non-renewable biomass going into the charcoal making process should be used (IPCC default: 6 kg wood per kg charcoal, reference manual of 1996 Guidelines page 1.45)
NCVbiomass	*Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 15 MJ/Kg).*
EFnon-renewable biomass, CO_2	*Emission factor for the substitution of non-renewable biomass by similar consumers locally in t CO_2 / TJ biomass.*

$$B_{y,savings} = B_y \cdot (1 - \frac{\eta_{old}}{\eta_{new}})$$

where:

By	*Quantity of non-renewable biomass used in the absence of the project activity*
η_{old}	*Efficiency of the system being replaced, use 20% as default value or local data if available*
η_{new}	*Efficiency of the system being deployed as part of the project activity.*

$$EF_{non\text{-}renewable\ biomas,\ CO2} = \frac{1}{2} \cdot (EF_{CO2,\ start} + EF_{CO2,\ end})$$

$$EF_{CO2,\ start} = EF_{CO2,\ biomass}$$

$$EF_{CO2,end} = X * (\frac{\varepsilon_{stoves,biomass}}{\varepsilon_{stoves,\ fossil}} \cdot EF_{CO2,fossil}) + (1 - X) * EF_{CO2,biomass}$$

where:

$EFCO_2$, start	*CO_2 emission factor of the baseline at the start of the project*
$EFCO_2$, end	*CO_2 emission factor of the baseline at the end of the project*
$EFCO_2$, fossil	*CO_2 emission factor for the fossil fuel; 71.5 tCO_2/TJ for Kerosene, 63.0 tCO_2/TJ for LPG or the IPCC default value of the fossil fuel commonly observed with local consumers*
$EFCO_2$, biomass	*CO_2 emission factor for the biomass fuel; 109.6 tCO_2/TJ (default for biomass from IPCC 1996 GL).*
X	*Share of fossil fuel used, in the baseline, by the "in-project" consumers at the time when the project ends, according to historical and/or current trends. X is to be determined as part of the PDD.* *By definition, at the beginning of the project all "in-project" consumers use non-renewable biomass.*
εstoves,biomass	*Average efficiency of stoves fired with biomass, use 20% as default value or local data if available*
εstoves,fossil	*Average efficiency of stoves fired with fossil fuels, use 50% as default value or local data if available*

Leakage

5. If there is a possibility that the savings of non-renewable biomass due to the project activity lead to greater use of non-renewable biomass outside the project boundary, then a leakage deduction of 15% shall be applied.

Monitoring

6. Monitoring shall consist of an annual check of all appliances or a representative sample thereof to ensure that they are still operating or replaced by an equivalent in service appliance. Monitoring shall include the efficiency of the appliances.

7. Monitoring shall ensure that the replaced low efficiency appliances are not used within the boundary.

8. If the leakage deduction of 15% is not applied, monitoring shall demonstrate that greater use of non-renewable biomass outside the project boundary does not occur.

D.2 Switch from NRB to Lower emission fossil fuel for thermal applications by user

Switch from Non-Renewable Biomass to Lower Emission Fossil Fuels for Thermal Applications by the User

Technology/ Measure

1. This category comprises small appliances involving the switch from non-renewable biomass (such as fuelwood or charcoal) to lower-emission fossil fuel sources of energy such as kerosene or LPG. These technologies include kerosene or LPG stoves and other measures using lower-emission fossil fuels.

Boundary

2. The project boundary is the physical, geographical area of the use of non-renewable biomass or the lower-emission fossil fuel.

Baseline

3. It is assumed that in the absence of the project activity, the baseline scenario would be the mix of non-renewable biomass and fossil fuel use expected to be used in the baseline, within the project duration, by the local consumers, for meeting similar thermal energy needs. Project proponents must demonstrate that the biomass use claimed to be non-renewable is indeed non-renewable, following the EB 23 Annex 18 definition of "renewable biomass" (by inversion).

In order to avoid incentives to enhance deforestation and forest degradation in order to meet the conditions of "non-renewable biomass", project proponents must, in addition, demonstrate that the biomass used by the project participants was non-renewable at the time of, or before, the adoption of this methodology (September 2006).

4. Emission reductions would be calculated as:

$$ER_y = B_y \cdot NCV_{biomass} \cdot EF_{non-renewable\ biomass,CO2} \cdot 10^{-3} - PE_y$$

Note: $10^{-3} - PE_y$ added

where:

ERy	*Emission reductions during the year y in t CO_2*
By	*Quantity of non-renewable biomass that is substituted or displaced in tonnes, calculated as:*

(i) the product of the number of appliances multiplied by the estimate of average annual consumption of non-renewable biomass per appliance (tonnes/year). This can be derived from historical data or a survey of local usage.

OR

(ii) The quantity of renewable biomass used in the project activity corrected for differences in calorific values.

In the case of charcoal the quantity of non-renewable biomass going into the charcoal making process should be used (IPCC default: 6 kg wood per kg charcoal, reference manual of 1996 Guidelines page 1.45)

NCVbiomass	*Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 15 MJ/Kg).*
EFnon-renewable biomass,CO_2	*Emission factor for the substitution of non-renewable biomass by similar consumers locally, in t CO_2 / TJ biomass.*
PE_y	*Project emissions during the year y in t CO_2*

$$EF_{\text{non-renewable biomas, CO2}} = \frac{1}{2} \cdot (EF_{\text{CO2, start}} + EF_{\text{CO2, end}})$$

$$EF_{\text{CO2, start}} = EF_{\text{CO2, biomass}}$$

$$EF_{\text{CO2, end}} = X * (\frac{\varepsilon_{\text{stoves, biomass}}}{\varepsilon_{\text{stoves, fossil}}} \cdot EF_{\text{CO2, fossil}}) + (1 - X) * EF_{\text{CO2,biomass}}$$

where:

$EFCO_2$, start	*CO_2 emission factor of the baseline at the start of the project*
$EFCO_2$, end	*CO_2 emission factor of the baseline at the end of the project*
$EFCO_2$, fossil	*CO_2 emission factor for the fossil fuel; 71.5 tCO_2/TJ for Kerosene, 63.0 tCO_2/TJ for LPG or the IPCC default value of the fossil fuel commonly observed with local consumers*
$EFCO_2$, biomass	*CO_2 emission factor for the biomass fuel; 109.6 tCO_2/TJ (default for biomass from IPCC 1996 GL).*
X	*Share of fossil fuel used, in the baseline, by the "in-project" consumers at the time when the project ends, according to historical and/or current trends. X is to be determined as part of the PDD.*
	By definition, at the beginning of the project all "in-project" consumers use non-renewable biomass.
εstoves,biomass	*Average efficiency of stoves fired with biomass, use 20% as default value*

	or local data if available
εstoves,fossil	*Average efficiency of stoves fired with fossil fuels, use 50% as default value or local data if available*

$$PE_y = FF_y * NCV_{fossil} * EF_{lower\ emission\ fuel,\ CO2} * 10^{-3}$$

where:

FFy	*Quantity of lower emission fossil fuel used in project in litres, calculated as the number of appliances times the estimated average annual consumption of lower emission fuel (fossil fuel) per appliance (litres/year). This can be derived from historical data or a survey of local usage.*
NCV_{fossil}	*Net calorific value of the lower emission fuel that is substituted (IPCC default for kerosene, 35.7 MJ/litre, LPG 24.8 MJ/litre)*
$EF_{lower\ emission\ fuel,\ CO2}$	*CO_2 emission factor for the fossil fuel; 71.5 tCO_2/TJ for Kerosene, 63.0 tCO_2/TJ for LPG or the IPCC default value of another fossil fuel used in the project by local consumers.*

Leakage

5. If there is a possibility that the savings of non-renewable biomass due to the project activity lead to greater use of non-renewable biomass outside the project boundary, then a leakage deduction of 15% shall be applied.

Monitoring

6. Monitoring shall consist of an annual check of all appliances or a representative sample thereof to ensure that they are still operating or replaced by an equivalent in service appliance.

7. Monitoring should confirm the complete displacement or substitution of the non-renewable biomass at each location.

8. If the leakage deduction of 15% is not applied, monitoring shall demonstrate that greater use of non-renewable biomass outside the project boundary does not occur.

D.3 Switch from Non-Renewable Biomass to Renewable Energy for Thermal Applications by the User

Switch from Non-Renewable Biomass to Renewable Energy for Thermal Applications by the User

Technology/ Measure

1. This category comprises small appliances involving the switch from non-renewable biomass ((such as fuelwood or charcoal) to renewable sources of energy. These technologies include biogas stoves, use of solar cookers and measures that involve the switch to renewable biomass.

Boundary

2. The project boundary is the physical, geographical area of the use of non-renewable biomass or the renewable energy.

Baseline

3. It is assumed that in the absence of the project activity, the baseline scenario would be the mix of non-renewable biomass and fossil fuel use expected to be used in the baseline, within the project duration, by the local consumers, for meeting similar thermal energy needs. Project proponents must demonstrate that the biomass use claimed to be non-renewable is indeed non-renewable, following the EB 23 Annex 18 definition of "renewable biomass" (by inversion).

In order to avoid incentives for to enhance deforestation and forest degradation in order to meet the conditions of "non-renewable biomass", project proponents must, in addition, demonstrate that the biomass used by the project participants was non-renewable at the time of, or before, the adoption of this methodology (September 2006).

4. Emission reductions would be calculated as:

$$ER_y = B_y \cdot NCV_{biomass} \cdot EF_{non-renewable\ biomass,CO2} \cdot 10^{-3}$$

Note: 10^{-3} added

where:

ERy	*Emission reductions during the year y in t CO_2*
By	*Quantity of non-renewable biomass that is substituted or displaced in tonnes, calculated as:*

(i) the product of the number of appliances multiplied by the estimate of average annual consumption of non-renewable biomass per appliance (tonnes/year). This can be derived from historical data or a survey of local usage.

OR

(ii) The quantity of renewable biomass used in the project activity corrected for differences in calorific values.

In the case of charcoal the quantity of non-renewable biomass going into the charcoal making process should be used (IPCC default: 6 kg wood per kg charcoal, reference manual of 1996 Guidelines page 1.45)

NCVbiomass	*Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 15 MJ/Kg).*
EFnon-renewable biomass,CO_2	*Emission factor for the substitution of non-renewable biomass by similar consumers locally, in t CO_2 / TJ biomass.*

$$EF_{\text{non-renewable biomas, CO2}} = \frac{1}{2} \cdot (EF_{CO2,\text{start}} + EF_{CO2,\text{end}})$$

$$EF_{CO2,\text{start}} = EF_{CO2,\text{biomass}}$$

$$EF_{CO2,\text{end}} = X * (\frac{\varepsilon_{\text{stoves, biomass}}}{\varepsilon_{\text{stoves, fossil}}} \cdot EF_{CO2,\text{fossil}}) + (1 - X) * EF_{CO2,\text{biomass}}$$

where:

$EFCO_2$, start	*CO_2 emission factor of the baseline at the start of the project*
$EFCO_2$, end	*CO_2 emission factor of the baseline at the end of the project*
$EFCO_2$, fossil	*CO_2 emission factor for the fossil fuel; 71.5 tCO_2/TJ for Kerosene, 63.0 tCO_2/TJ for LPG or the IPCC default value of the fossil fuel commonly observed with local consumers*
$EFCO_2$, biomass	*CO_2 emission factor for the biomass fuel; 109.6 tCO_2/TJ (default for biomass from IPCC 1996 GL).*
X	*Share of fossil fuel used, in the baseline, by the "in-project" consumers at the time when the project ends, according to historical and/or current trends. X is to be determined as part of the PDD.* *By definition, at the beginning of the project all "in-project" consumers use non-renewable biomass.*
εstoves,biomass	*Average efficiency of stoves fired with biomass, use 20% as default value or local data if available*
εstoves,fossil	*Average efficiency of stoves fired with fossil fuels, use 50% as default value or local data if available*

Leakage

5. If there is a possibility that the savings of non-renewable biomass due to the project activity lead to greater use of non-renewable biomass outside the project boundary, then a leakage deduction of 15% shall be applied.

Monitoring

6. Monitoring shall consist of an annual check of all appliances or a representative sample thereof to ensure that they are still operating or replaced by an equivalent in service appliance.

7. Monitoring should confirm the complete displacement or substitution of the non-renewable biomass at each location. In the case of appliances switching to renewable biomass the quantity of renewable biomass used shall be monitored.

8. If the leakage deduction of 15% is not applied, monitoring shall demonstrate that greater use of non-renewable biomass outside the project boundary does not occur.

D.4 Amendment form as submitted for above three Meth revisions

	CDM: Form for Submissions on Small Scale Methodologies and Procedures (version 01) ***(To be used for presenting questions/proposals/amendments to the simplified methodologies for small-scale CDM project activity categories)***
Name:	Bernhard SCHLAMDINGER
Affiliation[2]:	☐EB ☐DNA ☐DOE ☐ PP ☐Working Group Member ☒Stakeholder Institution: JOANNEUM RESEARCH, Graz / AUSTRIA (represented by Bernhard SCHLAMADINGER) In collaboration with: • Women for Sustainable Development, Bangalore, India (represented by Ms. Anandi SHARAN)
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Proposals for modifications of draft methodologies on replacing or reducing the use of non-renewable biomass, following the mandate by COPmop1: • Switch from Non-Renewable Biomass to Renewable Energy for Thermal Applications by the User • Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass Switch from Non-Renewable Biomass to Lower Emission Fossil Fuels for Thermal Applications by the User

[2] Executive Board (EB); Designated National Authority (DNA); Designated Operational Entity (DOE); Project Participant (PP), Working Group Member and Stakeholder.

Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.	Tentatively: I.E, II.G., and III.F.
E-mail addresses to which the answers are to be delivered.	bernhard.schlamadinger@joanneum.at cc to: anandi.sharan@gmail.com

Submitted Questions

Please use the space bellow to describe the questions related to the SSC Modalities and Procedures you wish to be clarified or decided. If the questions are related to a project under development or implementation, you may describe the context in which they arose. If you are proposing amendments to existing methodologies or inclusion of new categories (i.e. amendments to appendix B to the simplified methodologies), please specify the text you want to change or to introduce. If necessary, attach files or refer to sources of relevant information.

If you have a question relating to the application of a methodology contained in appendix B, please specify and provide reference to the exact technology/measure it applies.

>>

If you propose an amendment to appendix B or a new category, please justify why.

>> These proposed new methodologies are derived from the two methodologies proposed by the SSC Working Group recently (I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User; II.G. Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass). For transparency the changes made in this submission are marked yellow. A third methodology is proposed, entitled "Switch from Non-Renewable Biomass to Lower Emission Fossil Fuels for Thermal Applications by the User".

The proposed methodologies assume a mix of non-renewable biomass (including charcoal) and fossil fuel in the baseline. At the start of the project, per definition and per project design, the entire population of equipment in the project uses non-renewable biomass. In the baseline scenario this changes to a mix of non-renewable biomass and fossil fuels, corresponding to past and present regional trends.

The proposed methodologies also address concerns raised earlier by EB members that "NRB projects" may pose an incentive for increased deforestation. Finally, these methodologies conservatively prescribe a 15% leakage deduction, unless project proponents can verifiably demonstrate that no leakage (less than 2%) occurs in the specific project context.

PS: the two methodologies voted on by the EB had an error (factor of 10^{-3} missing in formula in para 4), which we have corrected.

In case you submit a new category please use the format of appendix B:

>> Three SSC draft methodologies are attached.

In case you propose the amendment of appendix B please provide your draft below:

>>

Date you are delivering the contribution:	July 27, 2006

D.4.1.1 INFORMATION TO BE COMPLETED BY THE SECRETARIAT

SSC-Submission number	
Date when the form was received at UNFCCC secretariat	
Date of transmission to the SSC-WG and EB	